

KINESITHERAPY USED TO TREAT OBESITY IN WOMEN

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Abstract: *This work aims to point out the influences of Kinesitherapy (Physical Therapy) in the recovery of overweight or obese individuals through the development and application of diets and exercise programs adapted to the degree of ponderability, age and disorders associated to the female included in the study.*

We have designed and applied a hypocaloric diet and an experimental program of training for the experimental group, with various difficulties, over the course of 30 days, two workouts per week. For the statistical processing we have used the Microsoft Excel application.

The results *obtained from observation and investigation revealed the passive attitude of overweight or obese individuals, compared to doing exercise caused by embarrassment and disbelief in their own forces, lack of self-esteem and disgust towards their own person, lack of capacity of effort and ease in performing everyday motor activities. After having applied the diet and the experimental physical training, we had better results at the final test, showing a significant progress between the two tests; the **conclusion** was that exercise and a proper diet can help losing weight, improving self-confidence and self-esteem and increasing the level of general physical training.*

Key words: *overweight, obesity, experimental programs of physical training, diet.*

1. Introduction

Health is defined as a state of balance, whose stability depends on a large number of internal and external factors whose action must be supervised and controlled [3].

As epidemics of global proportions, overweight and obesity affect more than 1 billion people on the planet. Currently, in the US, as well as in the developed countries of Europe (France, Germany and

others) over 40% of the adults are overweight and obese. In Romania, according to statistics, 30 percent of the population suffers from this epidemic, determined by nutrition and lack of physical exercise. A worrying fact is that the school population are suffering from obesity, the number of overweight school children, in the European Union having increased by approximately 400,000 per year [14].

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Kinesitherapy is a priority component of obesity therapeutics because it has a role in increasing energy expenditure, reducing weight on optimal time through diets, without the risk of dietary deficiencies of mineral salts, vitamins or negative protein balance. The muscle activity activates lipolysis and unsaturated fatty acids and at the same time contributes to the correction of static changes but also of complications and diseases associated to obesity and overweightness.

Many authors, including [2] and [7] have come to the conclusion that exercise, expressed through physical activity of any kind (outdoor walks, jogging, sports games, cycling, swimming, aerobics, etc.) but also a controlled low-calorie diet, can ensure a long and healthy life of individuals regardless of their age, sex, level of training or job.

The assessment of the optimal weight by simply referring to the stature of the individuals, according to Broca Index, proved not conclusive enough, which is why currently the study of the body mass composition is being performed: lean mass and fat mass. Lean mass represents 88-89% of the total weight (73% water, 20.2% protein mass, 6.8%, mineral substances and 0.5% glycogen). The fat mass represents the body and energy reserve and it is made up of adipose tissue (under normal circumstances it can reach 10-15% of the total weight-in obese people it can get over 70% of the total body weight) – [12].

2. Objectives

To attract overweight and obese people in specialized institutions (fitness centers, aerobics and Gym Clubs) for various physical activities in order to improve their

health, to have a harmonious physical and aesthetic development of women, to form a healthy concept about exercise and its effects on health, to increase the capacity of effort, to improve general physical training, to increase self-confidence and self-respect, to improve physical and mental relaxation and last but not least, to acquire basic knowledge concerning eating self-control.

3. The Hypothesis

In order to formulate the *working hypothesis*, it is assumed that the application of a proper diet and appropriate exercise programs rigorously supported may have positive effects on the health of overweight and obese people, rushing the process of excess fat reduction and improving the quality of their life.

4. Methods and Materials

4.1. Research Protocol

The research was conducted at a fitness and aerobic Center in Galati, over a three-month period (September-November 2015// 30 documentation days, observation regarding the image and the magnitude of the effects of overweight and obesity on the daily life and the application of the measurements and the initial bio-motor testing; 30 days to implement the low-calorie diets and physical exercise experimental programs; 30 days for final testing application and interpretation of the data). This study was done in collaboration with M.A. medical doctor, specialist in nutrition and metabolic diseases from Galati, recommending diets after having consulted the family doctor and the

medical personal files of each subject included in the experiment.

4.2. Subjects

The sample group was made up of 30 obese women aged between 20 and 30, with occupations in different domains of activity, 15 of the women, randomly chosen, forming the experimental group and the other 15 forming the control group.

4.3. Groups

The experimental group has followed a low-calorie diet and has had programs of physical exercise 3 times per week in the gym and aerobics center with a specialized instructor, and in the remaining days the exercises were done individually, while the control group just followed the diet lower in calories, not taking part in the program of Kinesiology (exercise therapy).

4.4. Evaluation Tests

10 measurements have been applied to determine the level of *somatic development*: height (**H**); weight (**W**),

thoracic perimeter (**TP**) (inspiration (**TP_I**), exhalation (**TP_E**), rest (**TP_R**); waist perimeter (**WP**); the pelvis perimeter (**PP**); bust perimeter (**BP**); thigh perimeter (**ThP**); lower leg perimeter (**LLP**); arm perimeter (**AP**); neck perimeter (**NP**) and 4 tests to determine *the motor capacity*: throwing a 4 kg stuffed ball (medicine ball) forward (**AMA**); from lying position face up - lifting the torso against time for 30 seconds (**A30''**); lying on the back face down- extensions against time 30 seconds (**E30''**); squats against time 30 seconds (**G30''**).

4.5. Complex Patterns of Exercises

After the analysis of the results of the initial tests we developed and applied low-calorie diets for 30 days, both on the subjects in the experimental group and on those in the control group-table 1.

Model of low-calorie diet

Table 1

WEEK I:

Morning: a cup of tea/milk slightly sweetened with honey, a slice of toast with butter;

10 a.m.: a small cup of tea sweetened with honey, a few salad leaves/ a glass of yogurt, a slice of toast 2-3 radishes;

Lunch: concentrated soup of vegetables, 100 gr. boiled potatoes, fruit juice/weak boiled fish, 100 gr. boiled potatoes, green salad;

16:00 a cup of tomato juice/two tomatoes/two apples, a biscuit;

Evening: a glass of buttermilk, a slice of dark bread with butter/a glass of milk a little sweetened with honey, a slice of toast with butter

Group No.	EG		CG		EG		CG		EG		CG		EG		CG	
1.	1,6	3,5	1,6	1,9	14	17	9	10	16	22	12	10	7	12	9	5
2.	2,1	3,8	1,9	2,0	12	26	14	14	10	23	13	14	8	16	6	8
3.	1,7	3,4	1,6	1,6	12	24	12	9	10	22	8	10	10	14	6	8
4.	1,6	2,6	1,4	1,5	8	21	12	9	12	24	10	10	4	10	14	5
5.	2,1	3,7	1,7	2,0	12	25	13	10	13	23	10	11	7	15	10	12
6.	1,8	3,3	1,8	2,2	9	23	13	10	17	24	14	15	5	9	8	10
7.	1,9	3,8	1,4	1,6	11	20	16	18	13	25	9	10	9	16	10	13
8.	2,2	3,0	1,5	1,8	12	25	11	10	9	20	13	13	8	18	12	14
9.	1,5	3,3	1,3	1,5	11	24	13	11	10	21	11	11	9	18	11	10
10.	1,7	3,6	1,2	1,2	13	25	12	12	11	23	11	9	10	19	12	10
11.	1,9	4,0	1,7	1,7	14	27	15	11	11	22	13	11	11	19	10	10
12.	2,0	4,2	1,7	1,5	11	22	14	12	13	25	12	12	14	20	9	10
13.	1,4	3,3	1,5	1,2	12	26	11	10	12	22	10	10	12	18	7	8
14.	1,7	3,7	1,8	1,5	10	27	13	13	13	24	11	12	12	19	12	10
15.	1,6	3,6	1,4	1,4	9	22	12	12	11	24	10	10	11	18	12	12
x	1,7	3,5	1,5	1,6	11,3	23,6	12,6	11,4	12	22,9	11,1	11,2	9,1	16	9,8	9,6
± m	+ 1,8		+ 0,1		+ 12,3		- 1,2		+ 10,9		+ 0,1		+ 6,9		- 0,2	

6. Discussions

Following the application of diets and physical training programs with means from aerobics, it resulted that the two groups have achieved better results at the final test on somatic indicators. Thus, the experimental group has seen an average drop of 9 kg overweight body fat, while the control group had a lower average of 4 kg. In other metrics too, the experimental group has recorded significant values in terms of reducing body perimeters, thus, the perimeter of waist, bust and pelvis have 5 cm lower averages compared to the control group which presents an average of body perimeter reductions of only 2 cm. At the final testing of the motor indicators, the

progress was obvious for the experimental group, showing higher average values between tests with 1.8 meters in throwing a 4 kg stuffed ball (medicine ball), 12.3 repetitions in determining the abdominal muscle strength, 10.9 iterations in testing back muscle strength and 6.9 iterations in testing the strength of their feet muscles. The control group, which agreed to follow the diet, but not to practice the exercise, presented negative average values, lower in final tests against initial tests when testing abdominal muscle strength and leg muscle strength. The progress of the experimental group was obvious both between the two tests and compared to the control group.

7. Conclusions

1. Obesity is one of the major tests of the contemporary civilization, statistics indicating a continuous growth of obesity worldwide.
2. The working hypothesis is confirmed; according to it, the application of proper diet and exercise programs rigorously supported may have positive effects on the health of overweight and obese people, accelerating the process of surplus fat reduction, improving quality of life for them.
3. Exercise and especially aerobics exercises have a role and in forming the capacity of muscular and mental relaxation, creating a good mood of the performers, while ensuring confidence and self-esteem.
4. Food diets with low calorie intake can reduce body weight, but to a small degree, if they are not backed up by physical exercise.
5. The association between diets and constant physical activities is highly recommended because it ensures weight loss and reduction of localized adiposity and improves the body's cardio-respiratory functions, increasing the capacity of effort and the specific motor skills.
6. The earlier obesity is reported, the more effective is the treatment against obesity.

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